

Bull Kelp Survey Summer 2025

Snohomish County Marine Resources Committee

Summary and Observations:

- All beds from 2024 were fully surveyed in 2025.
- All Data was recorded into the Kobo Toolbox
- Temperature logging at multiple depths was conducted at all sites
- 2 Volunteers, and 3 County Staff Recorded 135 hours for this project
- Observationally, kelp at both Hat Island and Edmonds appeared healthy this year

Introduction:

Bull kelp (*Nereocystis luetkeana*) is the largest species of brown algae native to the Puget Sound region. It can grow up to 60 feet in length in a single year and is an important part of the rocky intertidal ecosystem. It serves as both a primary producer in the food web of Puget Sound and as shelter and habitat for fish, invertebrates, marine mammals, and birds. In addition, the intricate structure of this living habitat buffers against current and wave energy to help protect the nearshore ecosystem.

In the Puget Sound, there have been noticeable declines in bull kelp abundance. While it is unclear what has caused these declines, potential factors include toxic pollutants from stormwater, erosion, high sediment deposition, and overpopulation of kelp predators.

In response to concerns over bull kelp decline and as part of the Snohomish County Marine Resource Committee's (SnoCo MRC) nearshore conservation goals, SnoCo MRC seeks to understand how much kelp habitat is currently in local waters. Since 2015, MRCs throughout the Puget Sound have been gathering data as part of the Northwest Straits Commission's Regional Kelp monitoring project. Snohomish MRC members and staff recently completed their monitoring in September 2025.

Scope and Objectives:

This report describes the project for fiscal year 2025. Surveys occur from July through September.

1. Collect data from previously surveyed kelp beds by boat-based surveys to extend historical observations.
2. Initiate new volunteers and ensure coverage for all sites.
3. Use the Kobo toolbox application for all data entry.
4. Use temperature loggers for measuring temperatures at multiple depths.

Project Progress

Bull kelp is distributed in several places within Snohomish County. Surveys are conducted at 4 sites throughout Snohomish County: Hat Island, Mukilteo, Meadowdale, and Edmonds (Figure 1). In 2017, six kelp beds covered 38.17 acres. By 2024, the number of beds had decreased to four, yet their combined area expanded to 101.4 acres, largely due to the Hat Island beds tripling in size. Acreage data for 2025 is not yet available, though the number of beds has dropped to three after two beds at Hat Island merged into one continuous bed.

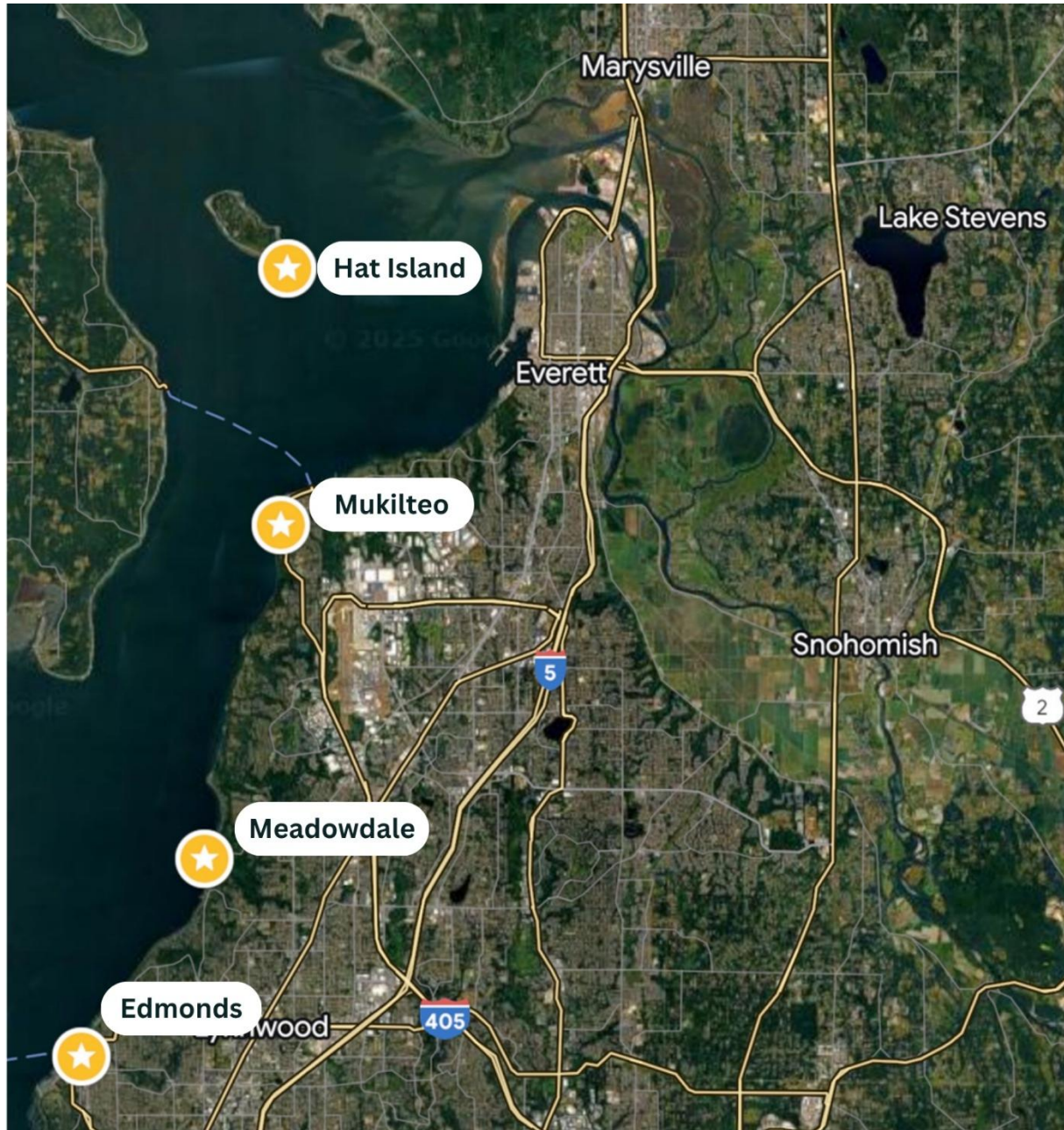


Figure 1 Location of survey sites in 2025.

Site Discussions

Edmonds

Edmonds consists of a North site and a South site within the Edmonds Dive Park. The North site historically consisted of a nearshore bed and a larger, deeper offshore bed. This year in the North site, the offshore bed looked healthy with visible sori. The nearshore bed in the North site disappeared in 2023 and was still gone this year, with sargassum in its place. The southern Dive Park bed is still present but small, with several bulbs dispersed around it.



Figure 2 The north offshore bed in Edmonds. Photo taken 7/8/2025.

Hat Island

The Hat Island kelp beds are surveyed with motorized vessels rather than kayaks due to their location. Hat Island has both a South and a West kelp bed. The South Bed is one of the largest beds in Snohomish County. In 2024, the South Island and West Island beds were connected when surveyed in September. In 2025, they continued this trend earlier and were connected in August.



Figure 3 The Hat Island South bed. Photo taken 8/10/2025.

Meadowdale

The Meadowdale kelp site is one of the two sites that SnoCo MRC volunteers survey that no longer has a measurable kelp bed. This year, only 2 kelp bulbs were found attached, and they did not appear healthy. However, 44 unattached bulbs were found floating within the survey area. It is unknown where these bulbs floated in from.

Mukilteo

The Mukilteo kelp site is the second site that SnoCo MRC volunteers survey that no longer has a measurable kelp bed. This year, there was one attached kelp bulb found in the middle of the eelgrass bed, as well as an additional floating kelp. While no kelp beds were found within the defined survey area, small kelp beds have been found on both the North and South sides of the Mukilteo ferry terminal. There is interest from SnoCo MRC members and staff to survey this site in the coming years; however, the Washington Department of Transportation would need to be consulted due to how close the ferry terminal is.



Figure 4 Attached kelp bulb found within eelgrass bed. Photo taken 7/7/2025.

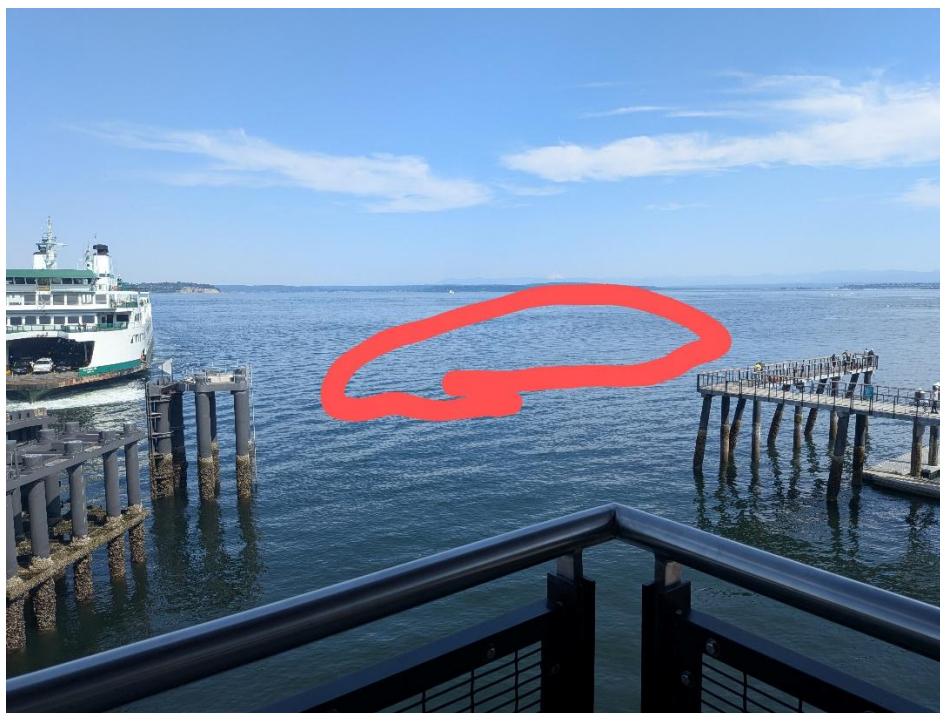


Figure 5 Approximate location of kelp bed on the North side of the ferry terminal

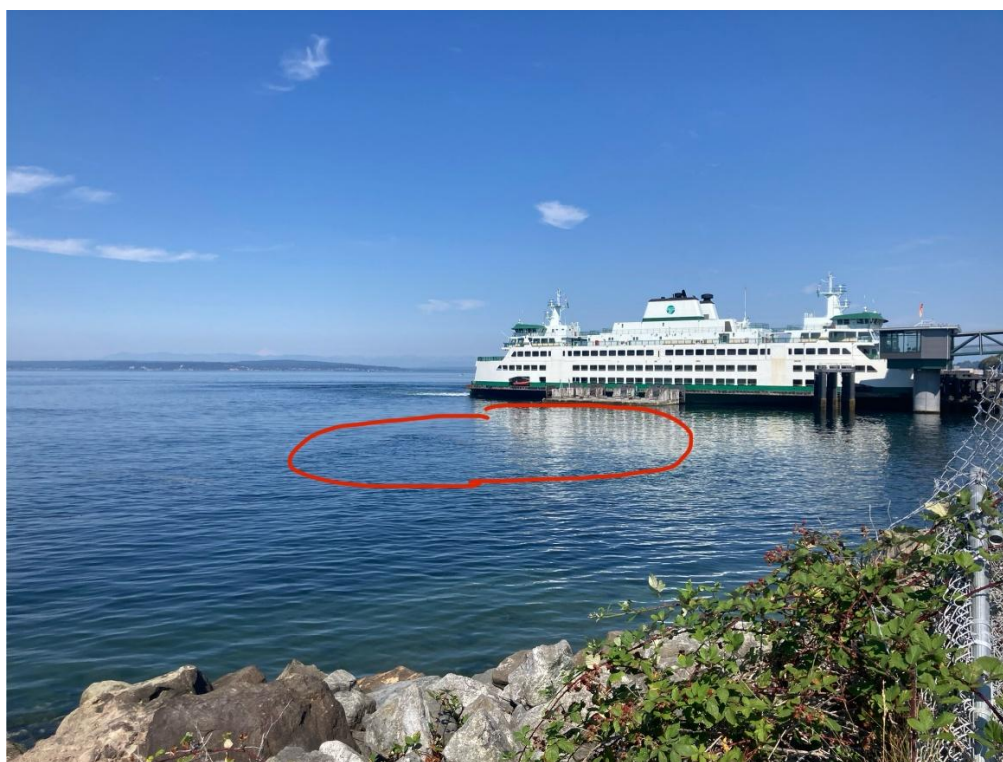


Figure 6 Approximate location of kelp bed on the South side of the ferry terminal.

Survey Summary

All four sites were surveyed in the 2025 season (Figure 1). The primary objective is to measure surface area (SA) and surface temperature of the bed throughout the season, as well as maximum SA for the year. Water temperature, depth throughout the bed, reproductive status of the plants, and occurrence of animals associated with the bed are also recorded.

Table 1: Summary of 2025 data recorded.

Year	2025											
Month	7				8				9			
	Date	Tide Height (ft)	Temp	Depth(ft)	Date	Tide Height (ft)	Temp	Depth(ft)	Date	Tide Height (ft)	Temp	Depth(ft)
Hat Island	10	-0.75	60	8.6-20.4	20	-1.3	57-59	8.2-26.5	4	0.1	61-58	5.0-23.7
Edmonds	8	-1.2	55-57	7.0-13.0	7	-1.31	57-59	7-13.5				
Mukilteo	7	-0.05	57	4								
Meadowdale	23	-2.5	58-59	3.0-9.0	Not Surveyed							

Historical Trends

The primary goal of this work is to understand the long-term dynamics of these beds and enable the integration of Snohomish County data into the regional picture in collaboration with other MRCs and government agencies. Annual snapshot surveys allow for the compilation of data over time to observe status and trends. The historical summary since program inception in 2015 (Figure 5) is updated through 2024. Data from this survey year will be added once the analyzed data is available from the Northwest Straits Commission.

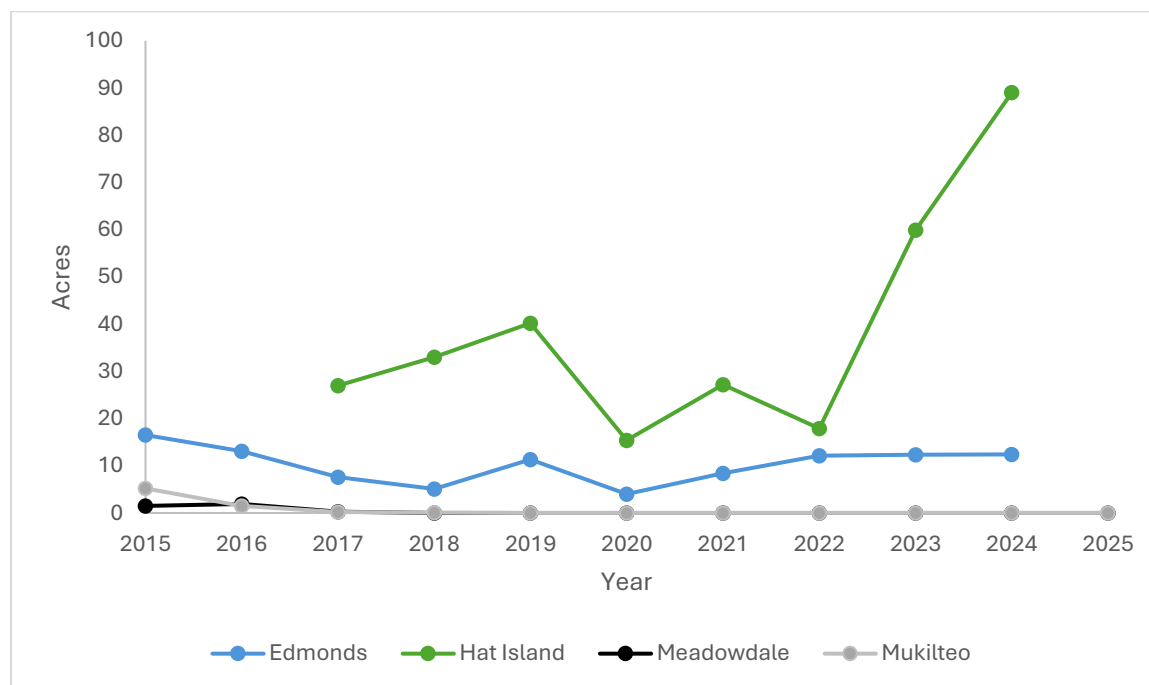


Figure 7 Graph of maximum surface area for Snohomish County bull kelp sites since program start.

Terrific Team

It takes a special sort of person to volunteer for this work, and we cannot be prouder of the volunteers and staff committed to seeing the work done well and with enthusiasm. Beyond the scientific skills to record quality data in a dynamic, wet, and often windy environment, it takes a certain level of enthusiasm, grace, and curiosity to be effective. We are very lucky to have a great group of volunteers.

Project participants

Project Lead: Elisa Dawson

SnoCo Staff Surveyors: Joycelyn Blue and Cali Weber

Motorized Boat Captains: Brett Gaddis and Stuart Baker

MRC Volunteer Surveyors: Brienne Townsend and Becky Passarella

Sources

Northwest Straits Commission. (2024). *Northwest Straits Initiative Floating Kelp Monitoring* [ArcGIS StoryMap]. ArcGIS StoryMaps. Retrieved September 3, 2025, from <https://storymaps.arcgis.com/stories/7605f2da0605472b9d6e99dd6801476b>

Snohomish County Marine Resources Committee. (2025). *Marine Vegetation Monitoring* [Webpage]. Snohomish County Marine Resources Committee. Retrieved September 3, 2025, from <https://www.snocomrc.org/projects/marine-vegetation-monitoring/>